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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,368	06/24/2003	Mary Ellen Carollo	END920030027US1	1169
26502	7590	01/30/2007		
IBM CORPORATION IPLAW IQ0A/40-3 1701 NORTH STREET ENDICOTT, NY 13760			EXAMINER ZHE, MENG YAO	
			ART UNIT	PAPER NUMBER
			2109	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/30/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/602,368

Applicant(s)

CAROLLO ET AL.

Examiner

MengYao Zhe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 06/24/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

This is the initial Office Action based on the 10/602368 application filed on June 24, 2003.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on June 24, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the Examiner has considered the IDS as to the merits.

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because a) the lines, numbers and letters are not uniform, clean and well defined (of a generally poor quality) in each of the 6 figures (37 CFR 1.84(l)). Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The

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corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The Examiner notes that the abstract contains 250 words, which has exceeded the limit.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (d) BRIEF SUMMARY OF THE INVENTION.

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- (e) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (f) DETAILED DESCRIPTION OF THE INVENTION.
- (g) CLAIM OR CLAIMS (commencing on a separate sheet).
- (i) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

The disclosure is objected to because of the following informalities: backgrounds of the invention heading is missing.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 to 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory matter.

As per claim 1, the examiner notes that it is a method claim that amounts merely to an abstract idea, one of the judicial exceptions. As of result, the entire process as claimed in 1 has to be a practical application of the judicial exception and has to produce either a physical transformation or a useful, concrete, and tangible result.

Physical transformation is not produced for claim 1.

Tangible result is also not produced for claim 1 because the entire process merely results in IP datagram being copied from output buffer into storage and requesting a tangible adapter card for the network to send the IP datagram. The mere request for a tangible adapter does not make the result of the determination of

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destination IP address at least available for use in the practical application of sending the datagram to the destination address. Hence, there is no real world result.

Similarly claims 2 through 8 are rejected based on the same reasoning.

As per claim 9, the applicant claims a virtual machine operating system.

However, an operating system is software, which is an abstract idea and thus a Judicial Exception.

Claim 10 is rejected because even though the computer program is tied to a computer readable medium, it still does not produce a tangible result that can be used for practical application because the mere request for a tangible adapter does not make the result of the determination of destination IP address at least available for use in the practical application of sending the datagram to the destination address. Furthermore, actual communication between the external device and the network does not happen at the mere request for an adapter. Hence, there is no real world result.

As per claim 11, it essentially claims for a method that copies data (IP datagram) into another location (the input buffer), and eventually sending it to a final location (the virtual machine). Through this entire process, the IP datagram remains within the memory space allocated for the usage of destined virtual machine. Thus data is merely being transferred from one memory space to another, which is never made available for practical application. Hence, there is no real world result.

Similarly, claims 12 to 15 are rejected based on the same reasoning.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 to 15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 7,111,303 in view of Virtualizing I/O Devices on VMware Workstation's Hosted Virtual Machine Monitor, published as part of the Proceedings of the 2001 USENIX Annual Technical Conference (hereafter VMware).

As per claim 1, claims 20 and 22 of 7,111,303 teach a method for communicating from a first virtual machine, defined by a virtual machine operating system, said virtual machine operating system defining other virtual machines and a base portion common to all of said virtual machines, said method comprising the steps of: said first virtual

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machine writing an IP datagram to an output buffer (the equivalent of a device driver) allocated to said first virtual machine, said IP datagram comprising data and a destination IP address; and program functions in said base portion reading said IP datagram from said output buffer (device driver) into storage (the equivalent of virtual NIC) allocated to said common base portion whereby said IP datagram passes from said first virtual machine into said common base portion storage without passing through any other virtual machines.

Claims 20 and 22 of 7,111,303 fail to teach a method for communication between virtual machines and external devices by using a tangible adapter card.

VMware teaches a computer system where the virtual machine is able to communicate to and from external devices through physical Ethernet using a tangible adapter card (the physical NIC, as shown in Figure 3) that is connected to the base portion for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services (section 2.2, second column, last sentence before the first paragraph). The examiner also notes that all virtual machines in Figure 3 of VMware are connected to the base such that all communication between two virtual machines are conducted by the base portion without data passing through any other virtual machines, as claimed by the applicant.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of claims 20 and 22 of 7,111,303 with communication to an external device as taught by VMware because it

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enables communication between a virtual machine and an external device, which enables any virtual machine to appear on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services.

The examiner notes that claim 9 and 10 are system claims, which contains all the instructions to perform the methods of claim 1. Therefore, they are rejected based on the same reasoning as stated above.

The examiner also notes that the method steps of claim 11 are merely the reverse of claim 1, where instead of information is being passed from a virtual machine to an external device, the information is passed from an external device to the virtual machine without passing through any other virtual machines. Because there is nothing in claims 20 and 22 of 7,111,303 to prevent virtual machine 2 from communicating to virtual machine 1 in the same way as claimed, and it is well known that external devices can communicate with virtual machines as disclosed by VMware, claim 11 is rejected.

As per claim 2, claims 20 and 22 of 7,111,303 teach an additional step of copying the IP datagram from said storage (the equivalent of virtual NIC) to an output buffer (device driver) for the second virtual machine (column 12, lines 25 to 30).

Claim 20 and 22 do not teach an output buffer that is specifically for a tangible adapter card.

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VMware teaches an output buffer (the equivalent of the VMNet Driver from Figure 3 of VMware) for said tangible adapter card (the equivalent of physical NIC) because it enables virtual machines to communicate with an external device.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of claim 20 and 22 of 7,111,303 to copying IP datagram to an output buffer that is for a tangible adapter card, instead of an output buffer for another virtual machine, for the purpose of communicating to an external device.

As per claim 3, claims 20 and 22 of 7,111,303 teach all that was mentioned previously. However, it does not teach a method for communication between virtual machines and external devices. As a result, they do not teach a network that is a LAN.

VMware teaches a computer system where the virtual machine is able to communicate to and from external devices through physical Ethernet that is connected to the base portion for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services (section 2.2, second column, last sentence before the first paragraph). VMware does not specify the network is a LAN. However, it does specify a physical Ethernet. Ethernet technology implies a LAN inherently.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the inventions of claim 20 and 22

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of 7,111,303 to communication between virtual machines and external devices using a network that is a LAN, as taught by VMware, because it enables virtual machine to fully participate in accessing and providing network services.

The examiner also notes that the method steps of claim 13 are merely the reversed steps of claim 3, where instead of information is being passed from a virtual machine to an external device using a LAN, the information is passed from an external device to the virtual machine using a LAN without passing through any other virtual machines. Because there is nothing in claims 20 and 22 of 7,111,303 to prevent virtual machine 2 from communicating to virtual machine 1 in the same way as claimed, and it is well known that external devices can communicate with virtual machines using a LAN as disclosed by VMware, claim 13 is rejected.

As per claim 4, claims 20 and 22 teaches an additional feature where said common base portion includes a list of destination IP addresses associated with each of said virtual machines, and said program functions in said common base portion determine that said destination IP address in said IP datagram is not associated with any of said virtual machines by checking said list (column 12, lines 11 to 30).

Claims 20 and 22 of 7,111,303 fail to teach a method for communication between virtual machines and external devices.

VMware teaches a computer system where the virtual machine is able to communicate to and from external devices through physical Ethernet that is connected to the base portion for the purpose of appearing on the local Ethernet segment

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indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services (section 2.2, second column, last sentence before the first paragraph).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of claims 20 and 22 of 7,111,303 with communication to an external device, as taught by VMware, because it enables communication between a virtual machine and an external device, which enables any virtual machine to appear on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services.

The examiner also notes that method steps of claim 14 are merely the reversed steps of claim 4, where instead of information is being passed from a virtual machine to an external device, the information is passed from an external device to the virtual machine without passing through any other virtual machines. Because there is nothing in claims 20 and 22 of 7,111,303 to prevent virtual machine 2 from communicating to virtual machine 1 in the same way as claimed, and it is well known that external devices can communicate with virtual machines as disclosed by VMware, claim 14 is rejected.

As per claim 5, claims 20 and 22 teach a method wherein said first virtual machine executes an application and an operating system, said operating system converting a write request from said application in one form into said IP datagram with a different form than said write request (column 12, lines 19 to 24). The examiner has

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taken the following into consideration: both the applicant and 7,111,303 have defined the IP datagram to be composed of data and the IP destination address associated with the external device. Interpreting the write request as the data and the address of destination where the write request gets sent to, the act of coupling the data with the IP address to form a datagram, as taught by 7,111,303, is an example of converting a write request from one form to a different form.

Claims 20 and 22 of 7,111,303 fail to teach a method for communication between virtual machines and external devices.

VMware teaches a computer system where the virtual machine is able to communicate to and from external devices through physical Ethernet that is connected to the base portion for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services (section 2.2, second column, last sentence before the first paragraph).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of claims 20 and 22 of 7,111,303 with communication to an external device, as taught by VMware, because it enables communication between a virtual machine and an external device, which enables any virtual machine to appear on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services.

As per claim 6, claims 20 and 22 teach a method where in said program functions determine the IP destination address of another virtual machine.

Claim 20 and 22 does not teach the ability of said program to determine the IP address of an external device for the purpose of communication between virtual machines and external devices so that virtual machine can fully participate in accessing and providing network services.

VMware teaches a computer system where the virtual machine is able to communicate to and from external devices through physical Ethernet that is connected to the base portion for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services (section 2.2, second column, last sentence before the first paragraph). Moreover, VMware clearly discloses (section 2.2, second paragraph, second to last line) that its computer system is also capable of communication just among virtual machines. It is obvious to one having ordinary skill in the art that this computer system would have to be provided with the ability to determine whether an IP destination address resides in a virtual machine operating system or external to said virtual machine operating system.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of claims 20 and 22 of 7,111,303 with communication to an external device with the capability of determining whether an IP destination address resides in a virtual machine or external to said virtual

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machine, as taught by VMware, because it enables virtual machines to fully participate in accessing and providing network services.

The examiner also notes that the method steps of claim 12 are merely the reversed steps of claim 6, where instead of information being passed from a virtual machine to an external device, the information is passed from an external device to a virtual machine and the computer is required to determine the destination of the information. Because there is nothing in claims 20 and 22 of 7,111,303 to prevent virtual machine 2 from communicating to virtual machine 1 in the same way as claimed, and it is well known that external devices can communicate with virtual machines as disclosed by VMware, claim 12 is rejected.

As per claim 7, claims 20 and 22 teach all mentioned previously. However, it does not teach a method for communication between virtual machines and external devices. As of result, they do not teach said other virtual machines initializing said adapter card for said program functions.

VMware teaches a computer system where the virtual machine is able to communicate to and from external devices for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services. Figure 4 of VMware shows a step where VMNet Driver passes datagram onto the Host Ethernet Driver, which is part of the physical NIC, such that the data to be communicated can be sent

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out to the destined external device. This step is the equivalent of the virtual machines initializing said adapter card.

It would have been obvious to one having ordinary skills in the art to have modified the claim 20 and 22 of 7,111,303 with communication to an external device with the step of virtual machine initializing said adapter card for said program functions, as taught by VMware, because it enables virtual machines to fully participate in accessing and providing network services.

The examiner also notes that the method steps of claim 15 are merely the reversed steps of claim 7, where instead of information being passed from a virtual machine to an external device, the information is passed from an external device to the virtual machine without passing through any other virtual machines. Because there is nothing in claims 20 and 22 of 7,111,303 to prevent virtual machine 2 from communicating to virtual machine 1 in the same way as claimed, and it is well known that external devices can communicate with virtual machines as disclosed by VMware, claim 14 is rejected.

As per claim 8, claims 20 and 22 teach a method as set forth in claim 1 further comprising the steps of: said first virtual machine writing, a second IP datagram to an output buffer allocated to said first virtual machine, said IP datagram comprising data and a destination IP address of another of said virtual machines; and program functions in said base portion reading said second IP datagram from said output buffer to determine said destination IP address, then copying said IP datagram from said output

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buffer into storage allocated to said common base portion whereby said IP datagram passes from said first virtual machine into said common base portion storage without passing through any other virtual machines, and then copying said IP datagram into an input buffer allocated to said other virtual machine.

Claims 20 and 22 of 7,111,303 fail to teach a method for communication between virtual machines and external devices.

VMware teaches a computer system where the virtual machine is able to communicate to and from external devices through physical Ethernet that is connected to the base portion for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services. The examiner also notes that all virtual machines in Figure 3 of VMware are connected to the base such that all communication between two virtual machines are conducted by the base portion without data passing through any other virtual machines, as claimed by the applicant.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of claims 20 and 22 of 7,111,303 with communication to an external device, as taught by VMware, because it enables communication between a virtual machine and an external device, which enables any virtual machine to appear on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 to 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent Application Publication 2003/0037178 in view of Virtualizing I/ Devices on VMware Workstation's Hosted Virtual Machine Monitor (hereafter VMware).

2003/0037178 teach

Claim 1: a method for communicating from a first virtual machine (the equivalent of first application that is executing in the first partition; page 37, second column, first 6 lines of claim 1), said method comprising the steps of: said first virtual machine writing an IP datagram (the equivalent of a message) to an output buffer (the equivalent of a local memory in first partition, Figure 25, 2522) allocated to said first virtual machine; and program functions in said base portion (the equivalent of shared

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memory) reading said IP datagram (message) from said output buffer (local memory) into storage allocated to said common base portion (shared memory) whereby said IP datagram passes from said first virtual machine into said common base portion storage without passing through any other virtual machines (the system is set up such that the message only passes the shared memory in order to get from partition 1 to partition 2 without passing through any other partitions).

Claim 2: an additional step of copying the IP datagram from said storage (the equivalent of shared memory) to an output buffer (the equivalent of local memory or buffer in the second partition, Figure 26, 2620) for the second virtual machine (the second partition).

Claim 4: a method as set forth in claim 1 wherein said common base portion (shared memory) includes a list of destination IP addresses (the equivalent of a Client Directory Table that is a registry of the clients on each partition that are using the shared memory) associated with each of said virtual machines, and said program functions in said common base portion determine that said destination IP address in said IP datagram is not associated with any of said virtual machines by checking said list (paragraph 0282).

Claim 5: a method as set forth in claim 1 wherein said first virtual machine executes an application and an operating system, said operating system converting a write request from said application in one form into said IP datagram with a different form than said write request. The examiner has taken the following into consideration: a datagram is the equivalent of a message. Interpreting the write request as a message

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and the address of destination where the write request gets sent to as a protocol header for the message (paragraph 0256), the act of building a protocol header for the message, as taught by 2003/0037178, is an example of converting a write request from one form to a different form.

Claim 8: a method as set forth in claim 1 further comprising the steps of: said first virtual machine writing (first partition), a second IP datagram (message) to an output buffer (local memory) allocated to said first virtual machine; reading said second IP datagram from said output buffer, then copying said IP datagram from said output buffer into storage allocated to said common base portion (shared memory) whereby said IP datagram passes from said first virtual machine into said common base portion storage without passing through any other virtual machines, and then copying said IP datagram into an input buffer allocated to said other virtual machine (second partition; see claim 1 of 2003/0037178 on page 37).

2003/0037178 fails to teach

Claim 1 to 15: communication between virtual machines and external devices;

Claim 2: an output buffer that is specifically for a tangible adapter card;

Claim 3: a network that is a LAN;

Claim 6: the ability of said program to determine the IP address of an external device for the purpose of communication between virtual machines and

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external devices so that virtual machine can fully participate in accessing and providing network services;

Claim 7: said other virtual machine initializing said adapter card for said program functions;

Claim 11: a method, reversed from that of claim 1, wherein information is passed from the external device to the virtual machine without passing through another virtual machine;

Claim 12: a method, reversed from that of claim 6, wherein information is passed from the external device to the virtual machine such that the computer determines the destination of the information;

Claim 14: a method, reversed from that of claim 4, wherein said common base portion includes a list of destination IP addresses associated with each of said virtual machines, and said program functions in said common base portion determine that said destination IP address in said IP datagram is not associated with any of said virtual machines by checking said list.

Claim 13: a method, reversed from that of claim 3, wherein the information is passed from an external device to the virtual machine using a LAN without passing through any other virtual machines;

Claim 15: a method, reversed from that of claim 7, wherein instead of information being passed from a virtual machine to an external device, the information is passed from an external device to the virtual machine without passing through any other virtual machines.

VMware teaches

Claim 1 to 15: a computer system where the virtual machine is able to communicate to and from external devices through physical Ethernet that is connected to the base portion for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services (section 2.2, second column, last sentence before the first paragraph). The examiner also notes that all virtual machines in Figure 3 of VMware are connected to the base such that all communication between two virtual machines are conducted by the base portion without data passing through any other virtual machines, as claimed by the applicant.

Claim 2: an output buffer (the equivalent of the VMNet Driver from Figure 3 of VMware) for said tangible adapter card (the equivalent of physical NIC) for the purpose of communicating to an external device.

Claim 3 and Claim 13: a computer system where the virtual machine is able to communicate to external devices through physical Ethernet that is connected to the base portion for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services (section 2.2, second column, last sentence before the first paragraph). VMware does not specify the network is a LAN. However, it does specify a physical Ethernet. Ethernet technology implies a LAN inherently.

Claim 6 and Claim 12: a computer system where the virtual machine is able to communicate to external devices through physical Ethernet that is connected to the base portion for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services. Moreover, VMware clearly discloses (section 2.2, second paragraph, second to last line) that its computer system is also capable of communication just among virtual machines. It is obvious to one having ordinary skill in the art that this computer system would have to be provided with the ability to determine whether an IP destination address resides in a virtual machine operating system or external to said virtual machine operating system.

Claim 7 and Claim 15: a computer system where the virtual machine is able to communicate to external devices for the purpose of appearing on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services. Figure 4 of VMware shows a step where VMNet Driver passes datagram onto the Host Ethernet Driver, which is part of the physical NIC, such that the data to be communicated can be sent out to the destined external device. This step is the equivalent of the virtual machines initializing said adapter card.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of 2003/0037178:

Claim 1 to 15: with communication to and from an external device, as taught by VMware, because it enables communication between a virtual machine and an external device, which enables any virtual machine to appear on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services.

Claim 2: with copying IP datagram to an output buffer that is for a tangible adapter card, instead of an output buffer for another virtual machine, as taught by VMware because it enables communicating to an external device.

Claim 3 and Claim 13: with communication to and from an external devices through physical Ethernet that is connected to the base portion for the purpose, as taught by VMware, because it enables any virtual machine to appear on the local Ethernet segment indistinguishably from any real machine such that the virtual machine can fully participate in accessing and providing network services (the Examiner notes that the use of Ethernet technology implies a LAN inherently).

Claim 6 and Claim 12: with communication to and from an external device with the capability of determining whether an IP destination address resides in a virtual machine or external to said virtual machine, as taught by VMware, because it enables virtual machines to fully participate in accessing and providing network services.

Claim 7 and Claim 15: with communication to and from an external device with the step of virtual machine initializing said adapter card for said program functions, as taught by VMware, because it enables the virtual machine to fully participate in accessing and providing network services.

The Examiner notes that:

Claim 9 and Claim 10: are system claims, which contain all the instructions to perform the methods of claim 1.

Therefore claims 1 to 15 are rejected based on reasons above.

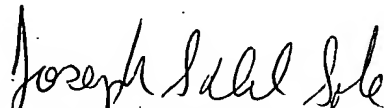
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MengYao Zhe whose telephone number is 571-270-1116 or 571-272-6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on 571-272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2700

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PRIMARY EXAMINER
1/19/07